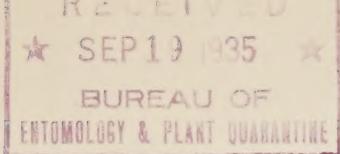


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MOTH CATCHER FOR LABORATORY USE

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While engaged in the investigation of the codling moth at Vincennes, Ind., the writer constructed a device for collecting the adult moths which differs somewhat from the common type of apparatus designed for this purpose. It is believed that the device possesses certain advantages that may interest other workers.

The chief advantage of the apparatus described here is that it has a relatively large intake of air, which enables the operator to pick up moths an inch away from the intake opening, thus greatly speeding up the work of collecting the insects. Other desirable features are that the moths are deposited gently into the container, without injury; large numbers of moths may be collected without changing the container; and most of the scales and similar light debris are carried away, hence the container does not become fouled quickly.

The collector consists essentially of an ordinary screw-top, glass fruit jar (J, fig. 1), to the metal top (T, fig. 1) of which is soldered an S-shaped intake tube. Details of construction may be determined by a study of the perspective drawing in figure 1 and the patterns in figure 2. The similarity in the lettering of identical parts throughout the figures is helpful in interpreting the diagrams.

In operation, a standard, flexible intake hose of a vacuum cleaner is attached to the hard rubber fitting (G, fig. 1), which is sealed permanently in the metal tube (E, fig. 1). A strong current of air draws the moths into the opening (h-s, fig. 1) of the intake tube. When the moths reach the sharp turn in the intake tube, centrifugal force holds the insects against the back of the tube, and deposits them gently through the opening (o, A, fig. 2) into the fruit jar. The air current does not enter the jar, but continues along the passageway above the top of the jar and through the outlet (b, A, fig. 2) leading to the vacuum cleaner.

A cross piece (e, B, fig. 2) constricts the throat of the tube at the turn, increases the speed of the air current at this point, and thus increases the centrifugal force acting upon the moths. The projection (c, B, fig. 2) increases the sharpness of the turn which the air current must make, and lessens the possibility of moths being carried past the opening (o, A, fig. 2). The small holes in the side and front walls of the intake tube (shown in B and C, fig. 2) permit the entry of air currents

which direct the moths against the back wall of the intake tube, and away from the side walls. The valve (v, C, fig. 2) serves as a "by pass" to regulate to some extent the amount of air drawn through the intake tube. A metal band (F, fig. 1) serves as a brace. The glass container jar makes a convenient handle when the catcher is in use. It is necessary to have the fruit jar fitted with a jar rubber and screwed snugly in place when the catcher is in operation.

The air current passing over the opening at the top of the container jar repels the moths, and insects apparently do not attempt escape by this route while the apparatus is in operation.

The metal parts of the collector are made of sheet tin, as this has a polished surface, and it is desirable to have the inside of the intake tube as smooth as possible to prevent injury to the insects. A fairly good tinsmith can construct the apparatus at small cost.

For operating the collector, suction should be provided by a vacuum cleaner. Hair driers and similar small devices do not generate sufficiently strong air currents.

Attention should be called to one disadvantage in the device. If the intake opening (h-s, fig. 1) is held in a position lower than the container jar, the moths may be drawn into the vacuum cleaner bag. It is, therefore, difficult to pick up moths from surfaces below the collector. If it is important to pick up moths from such places, the difficulty could probably be overcome by increasing the centrifugal force acting upon the moths. This may be done by closing the valve (v, C, fig. 2.) and increasing the length of the cross piece (e, B, fig. 2). Lengthening the projection (c, B, fig. 2) would also help.

During the past four years the apparatus described here has been in use for collecting codling moths in the laboratory at Vincennes, Ind. The device may also be useful for collecting other insects. In preliminary tests leaf-hoppers were readily collected.

Explanation of Illustrations

Figure 1. — Perspective drawing of the moth catcher.

Figure 2. — Drawings of parts of the moth catcher.

